Image AF 1724

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
before the Board of Appeals and Interferences

OUSSOREN, Reinout G., et al.	)	
	)	Examiner: Minh Chau Thi Pham
Serial No. 09/430,063	)	
	)	Art Unit: 1724
Filed: 10/29/99	)	
	)	Attorney Docket No. BHAG.68900
UNITARY FILTER CARTRIDGE	)	

CERTIFICATE OF MAILING
37 C.F.R. 1.8

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APPELLANT'S BRIEF

Pursuant to the provisions of 37 CFR 1.192, Appellant files this brief in triplicate, accompanied by the requisite fee, in its appeal of the final rejection of Claims 5-11 in the Office Action dated June 10, 2003 in the subject application.

REAL PARTY IN INTEREST

The real party in interest is BHA Group Holdings, Inc., a Delaware corporation having its principal place of business at 8800 East 63rd Street, Kansas City, Missouri, which is assignee of the subject application from the inventors Reinout G. Oussoren and Jack T. Clements in the assignment recorded October 29, 1999, at Reel/Frame 010359/0643.

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RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant, or the Appellant's legal representative, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

This application contains pending Claims 1-17. Claims 1-4 and 12-17 have been allowed. Rejected Claims 5-11 comprise the claims appealed.

STATUS OF AMENDMENTS

No amendment has been filed subsequent to the final rejection dated June 10, 2003.

SUMMARY OF INVENTION

A filter cartridge 1 having a unitary construction with a pleat pack filter 2 formed securely about an interior screen 4 for installation in the tube sheet 3 of a baghouse. Opposite ends of the pleat pack 2 are integrally received within a bottom end cap 6 and an upper fitting 8. The bottom end cap 6 may be molded to follow the contour of the pleat pack 2 as shown in Figs. 1 & 2,

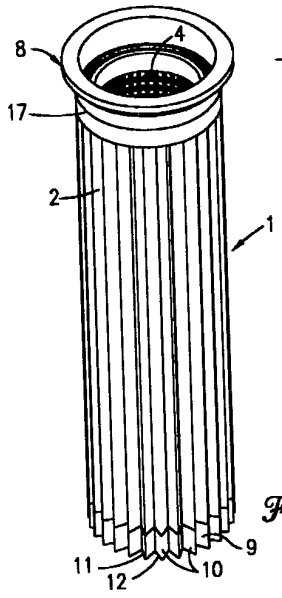


Fig. 1

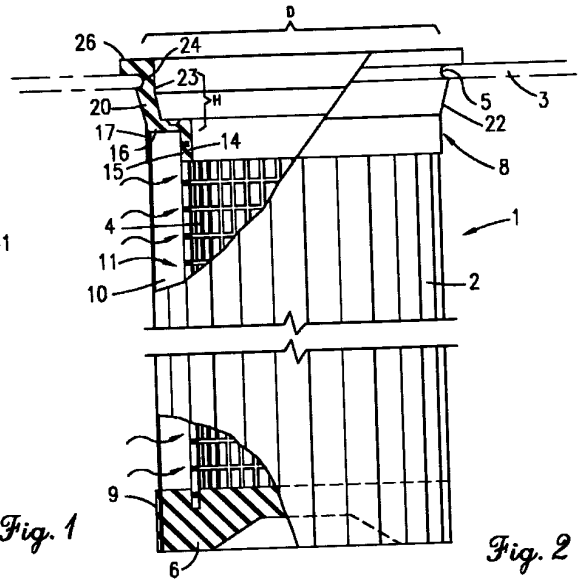
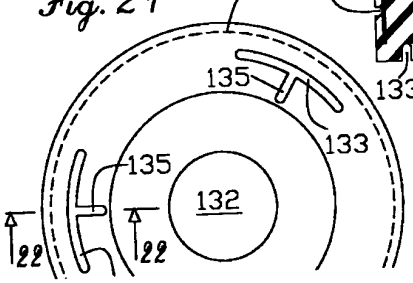


Fig. 2

or may be molded as a disk 131 with an inwardly projecting groove 134 to centrally align the pleat pack 2 therein as shown in Figs. 21 & 22.

Fig. 21



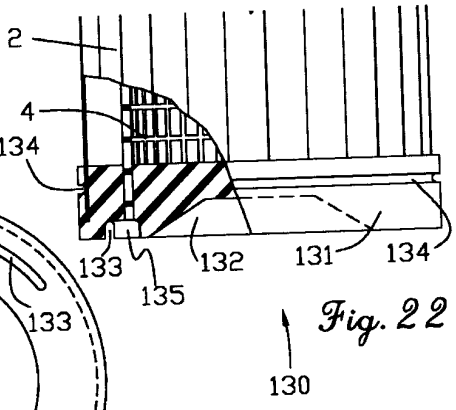


Fig. 22

The upper fitting 8 is formed of a resiliently flexible material and includes an upper flange 26 to overlie and seal with the upper surface of the tube sheet 3, a tube sheet mouth insert 24 to seal with a circular opening 5 in the tube sheet 3, a contoured transition 20 to seal with the lower surface of the tube sheet 3, and a lower cylindrical collar 17 which permanently secures the upper end of the filter pack 2. The contoured transition 20 of the fitting 8 is alternatively molded with either an exterior bulge as shown in Fig. 2 or an interior bulge 34 shown in Fig. 5 and as compared below.

Fig. 2

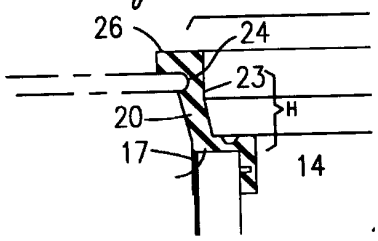
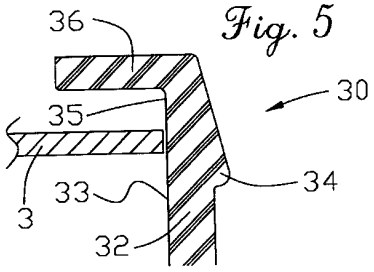
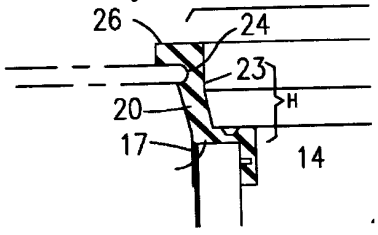


Fig. 5



The transition 20 with an exterior bulge is resiliently deformed inwardly to pass through the circular opening 5 of the tube sheet 3 during installation. The transition 30 with an interior bulge 34 freely passes through the circular opening 5 of the tube sheet 3 during installation and then receives an expander 40 to outwardly deform the material to seal with the lower surface of the tube sheet 3. Compare Figs. 2 and 6 below. In either alternative, the objective of the invention is to provide an effective seal on a portion of the top surface of the tube sheet 3, the cylindrical mouth opening thereof, and a portion of the bottom surface of the tube sheet 3.

Fig. 2



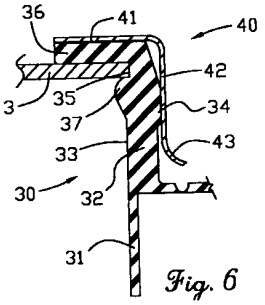


Fig. 6

ISSUES

1. Whether Brunner U.S. 5,964,909, issued October 12, 1999, is an effective prior art reference against the subject application.

2. If Brunner is prior art, then whether Applicant's Rule 131 evidence is sufficient to show completion of the invention before the effective date of Brunner.

3. If Brunner is prior art and if Applicant's Rule 131 evidence is insufficient to remove Brunner, then whether Claims 5-11 are properly rejected under 35 U.S.C. 103(a) as being obvious over Brunner U.S. 5,964,909.

GROUPING OF CLAIMS

It is believed that the rejected Claims 5-11 are a single group of which Claim 6 is representative.

ARGUMENT

A. Brunner is NOT an effective prior art reference on its face.

For at least three important reasons, Brunner is not an effective prior art reference against the present application.

First, the Brunner patent issued October 12, 1999 on an application filed September 4, 1998. As to the subject matter of the Brunner patent, the present application filed October 29, 1999 claims priority at least back to U.S. Patent No. 5,632,791, issued May 27, 1997 on an application filed December 6, 1994. For this reason alone, Brunner is not an effective prior art reference.

Secondly, in the Brunner patent, at column 1, line 58 et seq., Applicant's priority patent U.S. Patent No. 5,632,791 ***is specifically acknowledged as prior art***. This is additional reason to remove Brunner as an effective prior art reference in the present case.

And thirdly, the Examiner concedes that Brunner is not an effective 35 USC 102(e) reference. More precisely, the Examiner states: "Claims 1-4 are allowable because Brunner is not a reference under 35 USC 102(e) with respect to these claims as Applicant has support in his 120 priority document for the broad limitations being claimed herein." In spite of this clear admission, the Examiner then attempts to use Brunner as the sole basis of a 35 USC 103 rejection against a narrower, dependent claim. This is anomalous. If Brunner is not an effective prior art reference under 35 USC 102(e), then it is improper on its face to rely on Brunner as a 35 USC 103 reference.

B. Applicant's Rule 131 evidence removes Brunner.

In response to the Examiner's refusal to remove Brunner as a reference, Applicant has previously submitted an extensive showing to establish completion of the invention before the effective date of Brunner. In the record below, this showing is in the form of the "Combined Declaration under 37 CFR 1.131 and 37 CFR 1.132" of Jack T. Clements dated April 11, 2002 with attached Exhibits A-D and the "Declaration under 37 CFR 1.131" of Jack T. Clements dated October 15, 2002 with attached Exhibits A-E. A careful examination of these filings and the Examiner's responses thereto is instructive of the Examiner's apparent misunderstanding of the invention.

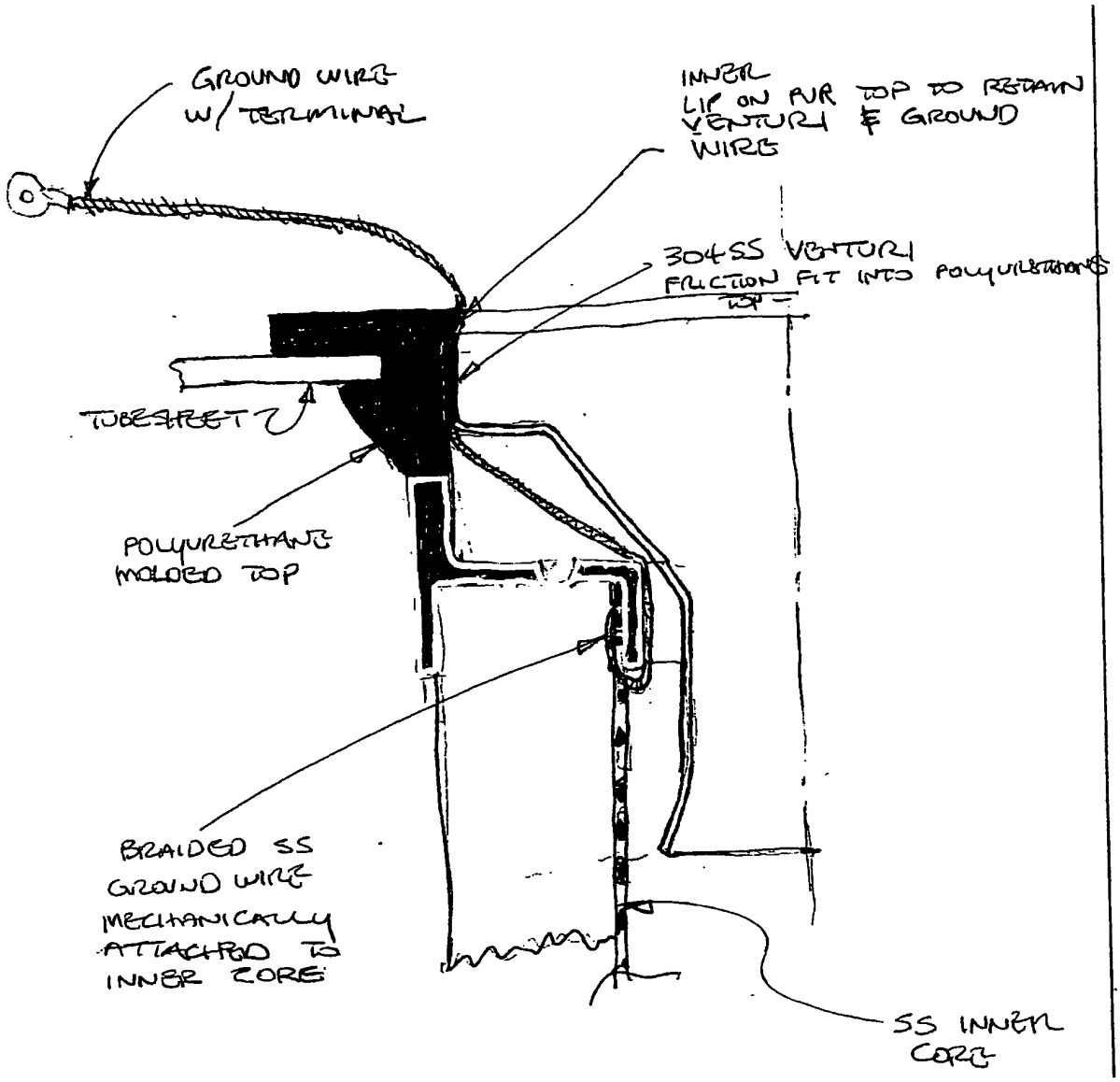
The Clements declaration of April 11, 2002 attached an assembly sketch (Exhibit A) sent to a potential customer and production drawings (Exhibits B-D) all dated before the effective date of Brunner. Specifically, the assembly sketch Exhibit A illustrated a tubular metal insert

installed in the mouth of the filter cartridge to effect a friction fit seal between the tube sheet opening and the resiliently deformable, molded top of the filter cartridge. The production drawings Exhibits B-D showed dimensional details of similar tubular metal inserts for installation in the mouth of various sized filter cartridges to effect a friction fit seal between the tube sheet opening and the resiliently deformable, molded top of the filter cartridge.

In the final Office Action dated June 18, 2002, the Examiner indicated that the foregoing evidence is ineffective to overcome the Brunner reference. The Examiner made the following comments addressing the Exhibits A-D and the various structural features at issue in the case:

> The Examiner thoroughly examines the sketch (exhibit A) as well as all the submitted exhibits B, C & D, but find none of these exhibits discloses the claimed feature 'a tubular fitting including a flange extending above the tube sheet having a tube sheet mouth insert, a contoured transition, a lower cylindrical collar extending beneath the tube sheet all integrally formed of flexible, resiliently deformable material, and a tubular expander with an insertable band including an outer diameter substantially equal to or less than the inner diameter of the flange of the fitting, and the band configured to engage interiorly the frusto-conical portion of the contoured transition of the fitting proximate the circular opening through the tube sheet to outwardly bias portions of the resiliently deformable fitting to affect sealing engagement with the cylindrical mouth surface of the tube sheet'.

In response, and to remove any confusion for the Examiner, a second, fresh Declaration dated October 15, 2002 was submitted which, in addition to the previously filed Exhibits A-D, also included a new Exhibit E. The new exhibit was formed from an enlarged copy of a portion of the Exhibit A sketch to which color highlights were added as shown here.

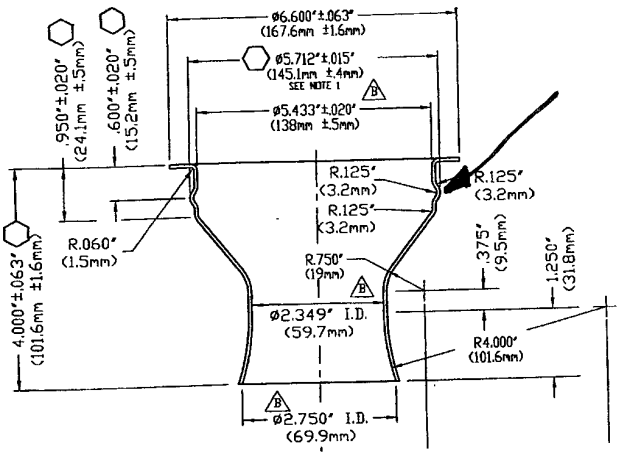


The second Clements Declaration then set forth the specific structural features referenced in the Examiner's foregoing comments and indicated as follows the color used to outline that particular feature in Exhibit E:

> First with reference to Exhibit A, the "tubular fitting" is shown in cross section in all black and "integrally formed of flexible, resiliently deformable material" – namely, molded polyurethane. Even though the molded top (i.e., the "tubular fitting") is integrally formed, in Exhibit E I've outlined with colors the various cross sectional regions of the structure to point out the features referenced by the Examiner. The "flange extending above the tube sheet" is outlined in the color red; the "tube sheet

mouth insert" is outlined in the color green; the "contoured transition" is outlined in the color blue; and the "lower cylindrical collar extending beneath the tube sheet" is outlined in the color yellow. The cross sectional portion of the "tubular expander" is outlined in the color magenta. That portion of the magenta outlined tubular expander which represents the "band" is filled in with the color turquoise and it can be seen in the sketch that the "band" has "an outer diameter substantially equal to or less than the inner diameter of the flange of the fitting" and is "configured to engage interiorly the frusto-conical portion of the contoured transition of the fitting proximate the circular opening". Moreover, it should be noted that the original sketch dated May 22, 1995 (Exhibit A) references the metal venturi's friction fit into the polyurethane top. Therefore, all of the features referenced in the Examiner's comments are clearly contained in the sketch of Exhibit A which long predates the Brunner patent.

In the final Office Action dated June 10, 2003, the Examiner continues to find Applicant's Rule 131 showing to be inadequate. The Examiner now finds no evidence to corroborate the existence of the bulge prior to insertion of the venturi expander. In this regard, the Examiner seems to completely overlook the teaching of the similar Exhibits B-D (a portion of one of which is shown below). It is clearly apparent that the venturi expander has a ridge or bulge around its circumference (see red arrow) which will expectedly cause a corresponding bulge in the flexible, resiliently deformable material into which the venturi expander is inserted as shown in the Exhibit A or E sketches. Indeed, the structures of Exhibits B-D, all of which predate the effective date of Brunner, appear to be aptly described by Claim 6 appealed herein.



It seems that the Examiner's chief concern in the final Office Action of June 10, 2003, almost a year after the final Office Action of June 18, 2002, is that Applicant has not show a picture of the bulge in the flexible material prior to insertion of the expander. That misses the point. The Applicant has shown completion of the invention before the effective date of the Brunner reference. Whether the bulge of material is initially on the interior or the exterior of the flexible molded top is completely immaterial. It is a simple reversal of parts which is readily understood by those skilled in the art. The whole gist of the invention is to create a seal which bulges outwardly against the tube sheet to seal a portion of the top surface, the cylindrical hole itself and a portion of the bottom surface.

The Rule 131 showing need not show each and every species claimed if the broad invention is shown. See *In re Clarke,* 148 USPQ 665 (CCPA 1966). In order to avoid a reference, a Rule 131 affiant need not necessarily show actual possession of either the entire invention as later claimed or such part of the invention as the reference discloses. It is sufficient that he show possession of such as to make the entire invention or that part obvious to one with ordinary skill in the art. As the court noted in *In re Spiller* (182 USPQ 614 (CCPA 1974), "it is proper to consider the obviousness *of the differences* between what is shown and what is claimed because possession of what is shown carries with it possession of variations and adaptations which would at the same time, be obvious to one skilled in the art."

An earlier case particularly in point here is *In re Dardick*, 181 USPQ 834 (CCPA 1974). Dardick filed an application on a type of ammunition for a "multiple bore open chamber gun" with both broad claims (Numbers 1, 2, 3, & 5) and a narrower claim (Number 4) limited to ammunition with "an obturating sleeve." A reference (Hawthorne) showed an identical type of

ammunition except without the sleeve. Dardick file a rule 131 affidavit showing prior possession of the ammunition without the sleeve. The court held the affidavit sufficient to remove Hawthorne as to claim 4. It would be anomalous to hold Hawthorne removed as to the broader claims with the sleeve limitation but not removed as to claim 4 which was "narrowed by a limitation which would have been obvious to one skilled in the art."

The foregoing is exactly what the Examiner has done in this case. Brunner has been removed as to the allowed broader Claims 1-4, but remains as to the narrower Claims 5-11. It is precisely the anomalous result that the prior decisions have sought to avoid.

The Clements Declaration, together with the attached Exhibits A-E, clearly demonstrates that the subject matter set forth in each of the Claims 1-11 of the application was invented at least before the filing date of September 4, 1998 of the Brunner U.S. Patent No. 5,964,909. Thus, Brunner is not an effective prior art reference against the subject application.

C. Brunner does not render representative Claim 6 obvious.

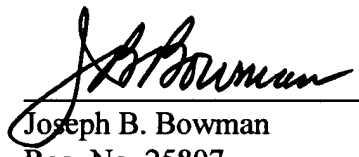
Assuming Brunner is an effective prior art reference, which Applicant challenges, and also assuming that the Rule 131 showing is inadequate, which Applicant also challenges, then even with these monumental assumptions, the Examiner's rejection is wrong by her own admission. The Examiner concedes that Brunner apparently ***does not seal all three surfaces of the opening of the tube sheet as claimed.*** This is the feature that goes to the very heart of Applicant's invention. But the Examiner dismisses the distinction with the totally unsupported statement that "it is felt that this would be obvious to one skilled in the art." Where the reference is completely silent about the feature, there is no suggestion other than Applicant's own disclosure to teach the necessary structure

to seal on all three surfaces of the tube sheet. The 103 rejection is unsupportable and must therefore be reversed.

CONCLUSION

Resolution of any one of the foregoing three issues in Applicant's favor is fatal to the Examiner's 103 obviousness rejection. The Board is urged to reverse the rejection of the final Office Action and to order issuance of the patent to which Applicant is entitled.

Respectfully submitted,



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APPENDIX

The following Claims 1-11 of which Claims 1-4 are allowed and Claims 5-11 are rejected and involved in this appeal.

1. (allowed) A unitary filter cartridge to be removably and sealingly received within a circular opening through a tube sheet separating the clean and dirty plenums of filtration apparatus, said tube sheet having an upper surface, a cylindrical mouth surface and a lower surface, said filter cartridge comprising:

a filter sleeve formed as a tubular member having an open upper end oriented toward said tube sheet and an open lower end oriented away from said tube sheet;

a tubular screen positioned interiorly of said filter sleeve for structural support thereof, said tubular screen having an open upper end oriented toward said tube sheet and an open lower end oriented away from said tube sheet;

a bottom end cap sealingly secured to the lower end of said filter sleeve to close said lower end of said filter sleeve; and

a unitary tubular, upper fitting including an upper flange extending above said tube sheet, a tube sheet mouth insert, a contoured transition and a lower cylindrical collar extending beneath said tube sheet all integrally formed of flexible, resiliently deformable material, said lower cylindrical collar of said fitting permanently securing said upper end of said filter sleeve, and said upper flange of said fitting overlying said tube sheet adjacent said circular opening to suspendingly support the filter cartridge from said tube sheet;

whereby, when said filter cartridge is installed in said tube sheet, said fitting deformably contacts said tube sheet on at least portions of the three tube sheet surfaces to

affect sealing engagement therewith such that at least a portion of said flange of said fitting seals with at least a portion of said upper surface of said tube sheet adjacent said circular opening, said tube sheet mouth insert of said fitting seals with said cylindrical mouth surface of said tube sheet, and at least a portion of said contoured transition of said fitting seals with at least a portion of said lower surface of said tube sheet adjacent said circular opening.

2. (allowed) The unitary filter cartridge as in Claim 1, wherein said fitting is configured to satisfy a relation $0.3 < H/D < 0.85$; wherein D represents the diameter of said circular opening through said tube sheet and H represents a distance between the upper end of said filter sleeve and said circular opening through said tube sheet.

3. (allowed) The unitary filter cartridge as in Claim 1 wherein, upon installation of said filter cartridge in said tube sheet, said contoured transition of said fitting includes a diameter slightly greater than the diameter of said circular opening to affect sealing engagement with at least a portion of said lower surface of said tube sheet and contours therefrom to a diameter less than or equal to the diameter of said circular opening integrally joining said lower cylindrical collar of said fitting.

4. (allowed) The unitary filter cartridge as in Claim 3 wherein, prior to installation of said filter cartridge in said tube sheet, said contoured transition of said fitting being formed exteriorly in a frusto-conical vertical cross-section including a diameter greater than the diameter of said circular opening and being formed interiorly in a substantially uniform cylindrical vertical cross-section;

whereby, during installation, said transition is resiliently deformed inwardly to pass through said circular opening of said tube sheet and then deflects outwardly to affect sealing engagement with at least a portion of said lower surface of said tube sheet.

5. (rejected) The unitary filter cartridge as in Claim 3 wherein, prior to installation of said filter cartridge in said tube sheet, said contoured transition of said fitting being formed interiorly in a frusto-conical vertical cross-section and exteriorly in a substantially uniform cylindrical vertical cross-section with a diameter less than or equal to the diameter of said circular opening;

whereby, during installation, said transition is passed through said circular opening of said tube sheet and then resiliently deformed outwardly to affect sealing engagement with at least a portion of said lower surface of said tube sheet.

6. (rejected) The unitary filter cartridge as in Claim 5, further comprising a tubular expander with an insertable band including an outer diameter substantially equal to or less than the inner diameter of said upper flange of said upper fitting, said band configured to engage interiorly said frusto-conical portion of said contoured transition of said fitting proximate said circular opening through said tube sheet to outwardly bias portions of the resiliently deformable fitting to affect sealing engagement with said cylindrical mouth surface of said tube sheet and with at least a portion of said lower surface of said tube sheet adjacent said circular opening.

7. (rejected) The unitary filter cartridge as in Claim 6, said frusto-conical portion of said contoured transition of said fitting having an innermost diameter smaller than the largest diameter of said insertable band of said tubular expander whereby said band causes portions of said

contoured transition to bulge outwardly beneath said tube sheet to affect sealing engagement with at least a portion of said lower surface of said tube sheet adjacent said circular opening.

8. (rejected) The unitary filter cartridge as in Claim 7, said insertable band comprises a cylindrical vertical wall having a diameter larger than the innermost diameter of said frusto-conical portion of said contoured transition of said fitting to cause portions of said contoured transition to bulge outwardly beneath said tube sheet to affect sealing engagement with at least a portion of said lower surface of said tube sheet adjacent said circular opening.

9. (rejected) The unitary filter cartridge as in Claim 7, said insertable band comprises a funnel wall tapering from a larger upper diameter, which is substantially equal to or less than the inner diameter of said upper flange of said upper fitting, to a smaller lower diameter, which is larger than the inner diameter of said filter sleeve; said funnel wall having an intermediate diameter larger than the innermost diameter of said frusto-conical portion of said contoured transition of said fitting to cause portions of said contoured transition to bulge outwardly beneath said tube sheet to affect sealing engagement with at least a portion of said lower surface of said tube sheet adjacent said circular opening.

10. (rejected) The unitary filter cartridge as in Claim 7, said insertable band comprises: (a) a cylindrical vertical wall having a diameter larger than the innermost diameter of said frusto-conical portion of said contoured transition of said fitting to cause portions of said contoured transition to bulge outwardly beneath said tube sheet to affect sealing engagement with at least a portion of said lower surface of said tube sheet adjacent said circular opening; and (b) a circumferential groove in said cylindrical vertical wall to receive therein a portion of said frusto-conical portion of said contoured transition of said fitting.

11. (rejected) The unitary filter cartridge as in Claim 6, said tubular expander further including a flange ring integrally joined to the upper end of said insertable band to overlie said upper flange of said upper fitting when said filter cartridge is installed in said tube sheet to affect sealing engagement between at least a portion of said flange of said fitting with at least a portion of said upper surface of said tube sheet adjacent said circular opening.